

SUPPLEMENTAL MATERIAL

Table S1. Patient characteristics before and after propensity match.

Factor	Before Match		After Match	
	Control population (N=7032)	Study population AS and CKD (N=839)	Matched Controls with CKD; no AS (N=839)	Study population AS and CKD (N=839)
Age	69.8±12.3	78.3±8.8	78.5±9.4	78.3±8.8
Male	3667(52.1)	426(50.8)	423(50.4)	426(50.8)
African American	1295(18.4)	70(8.3)	79(9.4)	70(8.3)
Body mass index, kg/m ²	29.8±6.8	29.7±6.6	28.4±5.7	29.7±6.6
Systolic Blood Pressure, mmHg	129.2±21.3	133.0±21.3	131.4±20.0	133.0±21.3
Diastolic Blood Pressure, mmHg	72.1±11.7	69.9±11.2	71.1±11.0	69.9±11.2
Hypertension	6294(89.5)	784(93.4)	772(92.0)	784(93.4)
Diabetes	1885(26.8)	237(28.2)	172(20.5)	237(28.2)
Hyperlipidemia	5590(79.5)	716(85.3)	666(79.4)	716(85.3)
Coronary Artery Disease	2263(32.2)	311(37.1)	263(31.3)	311(37.1)
Congestive Heart Failure	1196(17.0)	87(10.4)	69(8.2)	87(10.4)
Current smoking	495(7.0)	39(4.6)	39(4.6)	39(4.6)
Cerebrovascular disease	923(13.1)	138(16.4)	130(15.5)	138(16.4)
Peripheral vascular disease	266(3.8)	57(6.8)	41(4.9)	57(6.8)
Malignancy	1940(27.6)	230(27.4)	252(30.0)	230(27.4)
eGFR, ml/min/m ² *	46.0±10.9	46.0±10.4	46.5±10.8	46.0±10.4
Stage of Chronic Kidney Disease				
Stage 3a (45-59 ml/min/m ²)	4297(61.1)	511(60.9)	529(63.1)	511(60.9)

Factor	Before Match		After Match	
	Control population (N=7032)	Study population AS and CKD (N=839)	Matched Controls with CKD; no AS (N=839)	Study population AS and CKD (N=839)
Stage 3b (30-44 ml/min/m ²)	1993(28.3)	252(30.0)	234(27.9)	252(30.0)
Stage 4 (15-29 ml/min/m ²)	742(10.6)	76(9.1)	76(9.1)	76(9.1)
Proteinuria	1191(30.4)	112(27.4)	109(23.9)	112(27.4)
Year of Echocardiogram				
2004	246 (3.5)	20(2.4)	22(2.6)	20(2.4)
2005	1395(19.8)	147(17.5)	149(17.8)	147(17.5)
2006	1360(19.3)	163(19.4)	179(21.3)	163(19.4)
2007	1024(14.6)	148(17.6)	154(18.4)	148(17.6)
2008	985(14.0)	137(16.3)	127(15.1)	137(16.3)
2009	904(12.9)	106(12.6)	112(13.3)	106(12.6)
2010	829(11.8)	93(11.1)	85(10.1)	93(11.1)
2011	278(4.0)	23(2.7)	10(1.2)	23(2.7)
2012	11(0.16)	2(0.24)	1(0.12)	2(0.24)
Hemoglobin, mg/dL	12.4±1.9	12.3±1.9	12.7±1.8	12.3±1.9
Albumin, g/dL	4.0±0.54	4.0±0.49	4.0±0.50	4.0±0.49
Calcium, mg/dL	9.5±0.65	9.4±0.59	9.4±0.61	9.4±0.59
Alkaline phosphatase, U/L	84.0[67.0,108.0]	80.0[65.0,101.0]	81.0[66.0,103.0]	80.0[65.0,101.0]
Beta Blocker	4897(69.6)	533(63.5)	558(66.5)	533(63.5)
ACE/ARB	4963(70.6)	617(73.5)	566(67.5)	617(73.5)
Diuretic	5314(75.6)	655(78.1)	610(72.7)	655(78.1)
Statin	4367(62.1)	576(68.7)	523(62.3)	576(68.7)
Vasodilator	1884(26.8)	222(26.5)	194(23.1)	222(26.5)

Factor	Before Match		After Match	
	Control population (N=7032)	Study population AS and CKD (N=839)	Matched Controls with CKD; no AS (N=839)	Study population AS and CKD (N=839)
Phosphate Binder	219(3.1)	24(2.9)	18(2.1)	24(2.9)
Ejection Fraction, %	53.0±11.9	59.0±5.4	58.9±5.0	59.0±5.4

Values presented as Mean±SD, Median [P25, P75], or N (%). eGFR= glomerular filtration rate calculated using CKD-EPI equation.
ACEI: Angiotension Converting Enzyme Inhibitor, ARB: Angiotension Receptor Blocker

Table S2. Univariate predictors of all-cause mortality in patients with concomitant aortic stenosis and chronic kidney disease.

Factor	Univariable Hazard Ratio (95% CI)	p-value	Overall p for multiple categories
Age per 10 year older	1.4 (1.2, 1.6)	<0.001	
Male vs. Female	1.10 (0.90, 1.3)	0.345	
African American Race	1.1 (0.83, 1.6)	0.410	
Body mass Index, kg/m ²			<0.001
<25	Ref		
25-29.9	0.67 (0.52, 0.86)	0.001	
≥30	0.60 (0.46, 0.77)	<0.001	
Systolic Blood Pressure, per 1 mmHg increase	1.00 (0.99, 1.00)	0.379	
Diastolic Blood Pressure, per 1 mmHg increase	0.99 (0.98, 1.00)	0.167	
Hypertension	0.73 (0.51, 1.04)	0.082	
Diabetes	0.99 (0.79, 1.2)	0.896	
Hyperlipidemia	0.53 (0.42, 0.67)	<0.001	
Coronary Artery Disease	0.99 (0.81, 1.2)	0.953	
Congestive Heart Failure	1.6 (1.2, 2.1)	0.002	
Ejection Fraction per 5% lower	1.2 (1.06, 1.3)	0.002	
Current Smoking	1.3 (0.85, 2.0)	0.221	
Cerebrovascular disease	1.00 (0.77, 1.3)	0.982	
Peripheral vascular disease	0.82 (0.54, 1.2)	0.355	
Malignancy	1.5 (1.2, 1.8)	<0.001	
eGFR per 10 ml/min/m ² lower	1.3 (1.2, 1.4)	<0.001	
Stages of Chronic Kidney Disease			
eGFR 45-59 ml/min/m ² (Stage 3a)	Ref		<0.001
eGFR 30-44 ml/min/m ² (Stage 3b)	1.3 (1.03, 1.6)	0.028	
eGFR 15-29 ml/min/m ² (Stage 4)	2.2 (1.6, 2.9)	<0.001	
Hemoglobin per 1 mg/dL increase	0.87 (0.83, 0.92)	<0.001	

Factor	Univariable Hazard Ratio (95% CI)	p-value	Overall p for multiple categories
Albumin per 1 g/dL increase	0.62 (0.52, 0.75)	<0.001	
Calcium per 1 mg/dL increase	0.68 (0.58, 0.81)	<0.001	
Log alkaline phosphatase per 1 unit	1.70 (1.36, 2.12)	<0.001	
Proteinuria	1.7 (1.3, 2.3)	<0.001	
Beta Blocker	1.01 (0.82, 1.2)	0.918	
ACE/ARB	0.78 (0.63, 0.96)	0.022	
Diuretic	0.98 (0.77, 1.2)	0.838	
Statin	0.69 (0.56, 0.84)	<0.001	
Vasodilator	1.3 (1.06, 1.6)	0.014	
Phosphate Binder	1.2 (0.71, 2.1)	0.460	
Aortic Stenosis			0.002
Mild	Ref		
Moderate	0.90 (0.70, 1.16)	0.411	
Asymptomatic Severe	1.26 (0.95, 1.66)	0.109	
Symptomatic Severe	1.74 (1.16, 2.63)	0.008	
Aortic Valve Area per 1 cm ² increase	0.72 (0.56, 0.95)	0.017	
Peak Aortic Velocity (Vmax), m/s	1.02 (0.995, 1.04)	0.131	
Mean Gradient, mmHg	1.01 (1.00, 1.02)	0.008	
Right Ventricular Systolic Pressure, mmHg	1.02 (1.02, 1.03)	<0.001	
Indexed LVEDD cm/m ²	1.3 (0.96, 1.8)	0.092	
Indexed LVESD cm/m ²	1.6 (1.2, 2.2)	0.002	
Indexed LA diameter, cm/m ²	1.8 (1.4, 2.3)	<0.001	

eGFR= glomerular filtration rate calculated using CKD-EPI equation. ACEI: Angiotension Converting Enzyme Inhibitor, ARB: Angiotension Receptor Blocker. AVA= aortic valve area, LVEDD= left ventricular end diastolic diameter, LVESD= left ventricular end systolic diameter, LA= left atrial, LVOT= left ventricular outflow tract.

Figure S1. Kaplan Meier survival curves of all-cause mortality in patients with aortic stenosis and concomitant chronic kidney disease based on severity of aortic stenosis.

